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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/005,259	12/04/2001	Keiji Hayashi	2803.66027	2802
7590	05/05/2004		EXAMINER	
Patrick G. Burns, Esq. GREER, BURNS & CRAIN, LTD. Suite 2500 300 South Wacker Dr. Chicago, IL 60606			LUEBKE, RENEE S	
			ART UNIT	PAPER NUMBER
			2833	
DATE MAILED: 05/05/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/005,259

Applicant(s)

HAYASHI ET AL.

Examiner

Renee S. Luebke

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-8,10-22 and 28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-8,10-22 and 28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/04 & 12/01
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

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DETAILED ACTION

Pending claims

Initially it is noted that, contrary to applicant's listing of claims submitted March 8, 2004, claims 23-27 and 29-52 are not in a withdrawn status. They were cancelled in applicant's amendment of May 28, 2003. If applicant wishes any of these claims to be considered at some time in the future, they must be added and renumbered in the appropriate manner. Presently, only claims 1, 3-8, 10-22 and 28 are pending in the application.

Information Disclosure Statement

The information disclosure statement filed December 4, 2001 was not considered because it failed to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Despite applicant's assertions, no copies of the listed documents are presently found in the file. A search has been requested for the alleged missing documents, but has not yet yielded any results. Applicant is kindly requested to resubmit the listed documents for consideration.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-5 and 7 are 35 U.S.C. 102(b) as being anticipated by Sekiguchi et al. (US 4,978,890).

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Sekiguchi et al. discloses a backlight comprising a discharge tube 10, a reflector 20, and a non-metal, adhesive heat conduction member 70 attached/adhered to said reflector in contact with a part of said discharge tube, so that a part of said discharge tube is locally cooled by said heat conduction member and adhered to the discharge tube;

a heat radiation member 30 provided in contact with at least one of said heat conduction member and said reflector;

an electrically controllable cooling member 50 is provided in contact with said reflector.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10-22 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sekiguchi, et al.

Regarding claims 10, 12-15, 18, 20-22 and 28, Sekiguchi et al. discloses a backlight comprising a discharge tube;

a reflector 20;

wherein said discharge tube has electrodes 17a at opposite ends thereof, and said first position is located within a range spaced apart by $10D$ or by at least $0.25L$ from a tip of said electrode at each end of said discharge tube, where an inner diameter of said discharge tube is D and a distance between the electrodes at opposite ends of said discharge tube is L (Fig. 2);

wherein said cooling device comprises a heat conduction member 70 positioned to come into contact with said first position of said discharge tube, or positioned in the proximity of said first position of said discharge tube;

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wherein said cooling device includes a cooling capacity varying mechanism 50;

wherein said cooling device includes a movable heat conduction member 70 ("movable" only requires ability to move).

Sekiguchi, et al does not explicitly disclose that the mercury is used in the fluorescent lamp. However, mercury is well known in the art for use in fluorescent lamps. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use mercury in the fluorescent lamp since it was commonly used and thus readily available.

Regarding claims 11 and 19, Sekiguchi et al. discloses the invention substantially as claimed, but does not disclose a light guide plate nor blowing means. Both features are well-known in the art (*See, Spec., Page 1, Line 22; Sekiguchi et al., Column 1, Lines 23-27*). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include a light guide plate and blowing means to increase light intensity while maintaining acceptable ambient temperatures.

Regarding claim 16, Sekiguchi et al. discloses the invention substantially as claimed, but does not disclose the discharge tube comprising a carbon nanotube. Carbon nanotubes are a well-known electron emission source used for discharge tubes. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a carbon nanotube to allow for miniaturization of the backlight structure.

Regarding claim 17, Sekiguchi et al. discloses the invention substantially as claimed, but does not disclose the cooling device comprising a chromic material. Chromium is a known material with conductive properties. It would have been obvious to one having ordinary skill in the art at the time the invention was made to choose a chromic material for the cooling device because of its conductive properties to allow for efficient heat dissipation.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sekiguchi et al. in view of Loda et al.

Sekiguchi et al. discloses the invention substantially as claimed, but does not disclose the material exhibiting a cooling function *by phase transition*. Loda et al. teaches a phase transition cooling mechanism. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a material exhibiting a cooling function by phase transition for efficient cooling.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Davis (US 3,777,199) in view of Sekiguchi.

Davis discloses a backlight comprising a plurality of discharge tubes (Column 6, Line 3), a reflector 30 covering said discharge tubes for reflecting light radiated from said discharge tubes, and blowing means 36 for blowing air to a part of said discharge tubes between said discharge tubes but does not teach a reflector. Sekiguchi et al. teach a reflector. It would have been obvious to one having ordinary skill in the art to include a reflector in the Davis structure so that it could be used as a backlight.

Response to Arguments

Applicant's arguments filed March 8, 2004 have been fully considered, but they are not persuasive.

Applicant argues that Sekiguchi et al. fails to meet the limitation "wherein said heat conduction member is adhered to at least one of said discharge tube and said reflector." However, the heat conduction member 70 is adhered to the discharge tube 10, meeting this limitation. "Adhere" simply means to be stuck to, and member 70 is stuck to the discharge tube (see fig. 2).

Regarding Applicant's argument that Sekiguchi et al. does not teach a collection of mercury, use of mercury in fluorescent lamps is well known (the

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rejection has been changed to "obviousness") and it is inherent that when mercury is in a cold spot it will be in liquid form as recited in claims 10 and 22.

Applicant's other arguments are moot in view of the new grounds of rejection of some of the claims.

Conclusion

Any response to this action may be mailed to:
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

or faxed to:
(703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mrs. Renee Luebke at (571) 272-2009. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mrs. Paula Bradley, can be reached at (571) 272-2800, extension 33.

AMM
October 29, 2003


RENEE LUEBKE
PRIMARY EXAMINER